



(43) International Publication Date
8 July 2004 (08.07.2004)

PCT

(10) International Publication Number
WO 2004/056863 A3

(51) International Patent Classification⁷: **C07K 14/61**,
C12N 5/00, A61K 38/27, 39/00, A01K 67/00

Mariastella [CH/CH]; Rue des Sablons 6, CH-1205
Geneve (CH).

(21) International Application Number:
PCT/GB2003/005594

(74) Agents: **GOODFELLOW, Hugh, Robin** et al.; Carp-
maels & Ransford, 43-45 Bloomsbury Square, London
WC1A 2RA (GB).

(22) International Filing Date:
19 December 2003 (19.12.2003)

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR,
CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,
GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR,
KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN,
MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU,
SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA,
UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0229850.3 20 December 2002 (20.12.2002) GB

(71) Applicant (*for all designated States except US*): **ARES
TRADING S.A.** [CH/CH]; Chateau de Vaumarcus,
CH-2028 Vaumarcus, Switzerland (CH).

(84) Designated States (*regional*): ARIPO patent (BW, GH,
GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE,
SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA,
GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **FAGAN, Richard**,
Joseph [US/GB]; Inpharmatica, 60 Charlotte Street, Lon-
don W1T 2NU (GB). **PHELPS, Christopher, Benjamin**
[GB/GB]; Inpharmatica Limited, 60 Charlotte Street,
London W1T 2NU (GB). **RODRIGUES, Tania, Maria**
[GB/GB]; Inpharmatica Limited, 60 Charlotte Street,
London W1T 2NU (GB). **POWER, Christine** [GB/FR];
10, rue des Jonquilles, F-01710 Thoiry (FR). **DE TIANI**,

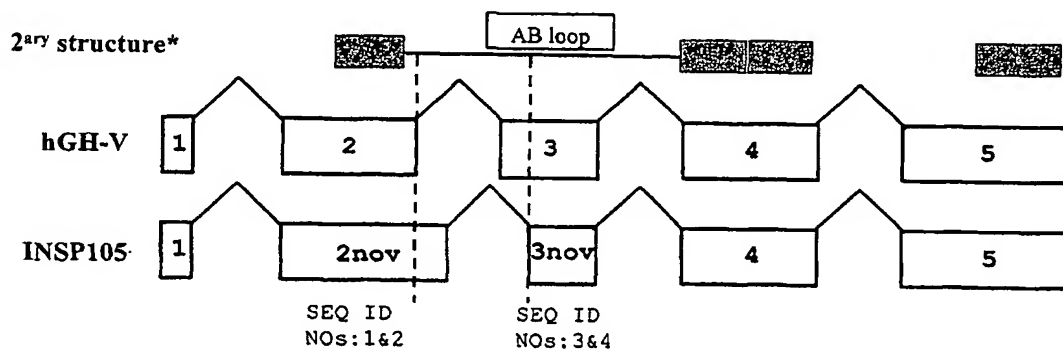
Published:

- with international search report
- before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments

[Continued on next page]

(54) Title: SPLICE VARIANT OF HUMAN PLACENTAL GROWTH HORMONE

Gene Structure



*Secondary structure is based on hGH-N structure

(57) Abstract: This invention relates to a novel protein, termed INSP105, herein identified as a novel splice variant of human placental growth hormone and to the use of this protein and nucleic acid sequences from the encoding genes in the diagnosis, prevention and treatment of disease.



(88) Date of publication of the international search report:
19 August 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

PCT/GB 03/05594

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C07K14/61 C12N5/00 A61K38/27 A61K39/00 A01K67/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, BIOSIS, Sequence Search, EMBASE, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>BOGUSZEWSKI CESAR L ET AL: "Cloning of two novel growth hormone transcripts expressed in human placenta" JOURNAL OF CLINICAL ENDOCRINOLOGY AND METABOLISM, vol. 83, no. 8, August 1998 (1998-08), pages 2878-2885, XP002284754 ISSN: 0021-972X figures 1,2,5 & DATABASE EBI retrieved from EBI Database accession no. 014643 95.545% identity in a 202 aa overlap to Seq-ID-N° 8; 94.886% identity in 176 aa overlap to Seq-ID-N°10 abstract</p> <p style="text-align: center;">-/--</p>	<p>1-13, 19-21, 23-45</p>

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another invention or other special reason (as specified)
- *O* document relating to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *G* document member of the same patent family

Date of the actual completion of the international search

16 June 2004

Date of mailing of the international search report

29/06/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5618 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Seranski, P

INTERNATIONAL SEARCH REPORT

PCT/GB 03/05594

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 14-18, 22 (complete), 19, 31, 33-37 (Partially)
because they relate to subject matter not required to be searched by this Authority, namely:
see FURTHER INFORMATION sheet PCT/ISA/210
2. ☒ Claims Nos.: 14-18, 22 (complete), 19, 31, 33-37 (Partially)
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

PCT /GB 03/05594

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>& DATABASE EBI retrieved from EBI Database accession no. AF006060 96,716% identical in a 609nt overlap to Seq-ID-N°7; 96.234% identity in 531 nt overlap to Seq-ID-N°9 abstract</p> <p>-----</p> <p>US 5 597 709 A (ROSEN CRAIG A ET AL) 28 January 1997 (1997-01-28)</p> <p>Disclosure of a splice variant of human growth hormone. Claimed are polypeptides, polynucleotides, process for producing said polypeptide, vector and host cell. Application shows different binding</p> <p>& DATABASE EBI retrieved from EBI Database accession no. AAR76819 90,955% identity in a 199aa overlap to Seq-ID-N°8; 89.595% identity in 173 aa overlap to Seq-ID-N°10; 90.955% identity in 199 aa overlap to Seq-ID-N°10 abstract</p> <p>& DATABASE EBI retrieved from EBI Database accession no. I34299 96.167% identity in 600 nt overlap to Seq-ID-N°7; 96.552% identity in 522 nt overlap to Seq-ID-N°9 abstract</p> <p>-----</p>	<p>1-13, 19-21, 23-45</p>

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.1

Although claim 20 is directed to a diagnostic method practised on the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition. Although claims 25-29 and 35 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.

Continuation of Box I.2

Claims Nos.: 14-18, 22 (complete), 19, 31, 33-37 (Partially)

Present claims 14-18, 22 (complete), 19, 31, 33-37 (Partially) relate to an extremely large number of possible compounds/ and ligands. Support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT cannot be found for any compounds or ligands. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Consequently, the search has been carried out for those parts of the claims which appear to be supported and disclosed, namely those parts relating to the polynucleotides and polypeptides disclosed in the application.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.

INTERNATIONAL SEARCH REPORT

Information on patent family members

PCT /GB 03/05594

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5597709	A	28-01-1997	AU 681260 B2	21-08-1997
			AU 1868595 A	15-08-1995
			CA 2182205 A1	03-08-1995
			CN 1142188 A	05-02-1997
			EP 0741578 A1	13-11-1996
			JP 9508522 T	02-09-1997
			JP 2002300893 A	15-10-2002
			NZ 281761 A	24-11-1997
			WO 9520398 A1	03-08-1995
			US 6566328 B1	20-05-2003
			US 5962411 A	05-10-1999